SLOVENSKI STANDARD
SIST EN 60871-1:2007

01-januar-2007

Nadomeģ a:
SIST EN 60871-1:2001

Paralelni kondenzatorji za sisteme z izmeniļ no napetostjo v nazivnem obmoļ ju nad 1000 V - 1. del: Sploġno (IEC 60871-1:2005)

Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V -- Part 1: General

Parallelkondensatoren für Wechselspannungs-Starkstromanlagen mit einer Nennspannung über 1 kV -- Teil 1: Allgemeines

Condensateurs shunt pour réseaux à courant alternatif de tension assignée supérieure à 1 000 V -- Partie 1: Généralités

Ta slovenski standard je istoveten z: **EN 60871-1:2005**

ICS:

31.060.70 Moļ nostni kondenzatorji Power capacitors

SIST EN 60871-1:2007 **en**

EUROPEAN STANDARD **EN 60871-1**

NORME EUROPÉENNE

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ICS 29.240.99; 31.060.70 Supersedes EN 60871-1:1997

English version

Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V Part 1: General

(IEC 60871-1:2005)

Condensateurs shunt pour réseaux à courant alternatif de tension assignée supérieure à 1 000 V
Partie 1: Généralités
(CEI 60871-1:2005)

Parallelkondensatoren für Wechselspannungs-Starkstromanlagen mit einer Nennspannung über 1 kV
Teil 1: Allgemeines
(IEC 60871-1:2005)

This European Standard was approved by CENELEC on 2005-10-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC
European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 60871-1:2005 E

Foreword

The text of document 33/411/FDIS, future edition 3 of IEC 60871-1, prepared by IEC TC 33, Power capacitors, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60871-1 on 2005-10-01.

This European Standard supersedes EN 60871-1:1997.

The main changes with respect to EN 60871-1:1997 regard the modification of the values of the test voltage during the voltage test between terminals and the introduction of the clause concerning the choice of creepage distances and air clearances.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2006-07-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2008-10-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60871-1:2005 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60110-1	NOTE	Harmonized as EN 60110-1:1998 (not modified).
IEC 60143	NOTE	Harmonized in the EN 60143 series (not modified).
IEC 60252	NOTE	Harmonized in the EN 60252 series (not modified).
IEC 60273	NOTE	Harmonized as HD 578 S1:1992 (not modified).
IEC 60358	NOTE	Harmonized as HD 597 S1:1992 (not modified).
IEC 60831	NOTE	Harmonized in the EN 60831 series (not modified).
IEC 60931	NOTE	Harmonized in the EN 60931 series (not modified).
IEC 60931-3	NOTE	Harmonized as EN 60931-3:1996 (not modified).
IEC 61048	NOTE	Harmonized as EN 61048:1993 (modified).
IEC 61049	NOTE	Harmonized as EN 61049:1993 (modified).
IEC 61071	NOTE	Harmonized in the EN 61071 series (modified).
IEC 61270-1	NOTE	Harmonized as EN 61270-1:1996 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60060-1 + corr. March	1989 1990	High-voltage test techniques Part 1: General definitions and test requirements	HD 588.1 S1	1991
IEC 60071-1	1993	Insulation co-ordination Part 1: Definitions, principles and rules	EN 60071-1	1995
IEC 60071-2	1996	Part 2: Application guide	EN 60071-2	1997
IEC 60099 (mod)	series	Surge arresters	EN 60099	series
IEC 60549	1976	High-voltage fuses for the external protection of shunt power capacitors	-	-
IEC 60815	1986	Guide for the selection of insulators in respect of polluted conditions	-	-
IEC 60871-2	1999	Shunt capacitors for a.c. power systems having a rated voltage above 1kV Part 2: Endurance testing	-	-
IEC 60871-4	1996	Part 4: Internal fuses	EN 60871-4	1996

NORME INTERNATIONALE

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CEI
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60871-1

Troisième édition
Third edition
2005-07

Condensateurs shunt pour réseaux à courant alternatif de tension assignée supérieure à 1 000 V –

Partie 1: Généralités

Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V –

Part 1: General

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Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SHUNT CAPACITORS FOR AC POWER SYSTEMS HAVING A RATED VOLTAGE ABOVE 1 000 V –

Part 1: General

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

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International Standard IEC 60871-1 has been prepared by IEC technical committee 33: Power capacitors.

This third edition cancels and replaces the second edition, published in 1997, and constitutes a technical revision.

The main changes with respect to the previous edition regard the modification of the values of the test voltage during the voltage test between terminals and the introduction of the clause concerning the choice of creepage distances and air clearances.

The text of this standard is based on the following documents:

FDIS	Report on voting
33/411/FDIS	33/419/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

IEC 60871 consists of the following parts, under the general title *Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V*

Part 1 General

Part 2 Endurance testing

Part 3 Protection of shunt capacitors and shunt capacitor banks

Part 4 Internal fuses

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

SHUNT CAPACITORS FOR AC POWER SYSTEMS HAVING A RATED VOLTAGE ABOVE 1 000 V –

Part 1: General

1 Scope and object

This part of IEC 60871 is applicable to both capacitor units and capacitor banks intended to be used, particularly, for power-factor correction of a.c. power systems having a rated voltage above 1 000 V and frequencies of 15 Hz to 60 Hz.

This part of IEC 60871 also applies to capacitors intended for use in power filter circuits. Additional definitions, requirements and tests for filter capacitors are given in Annex B.

Additional requirements for capacitors protected by internal fuses as well as requirements for the internal fuses are given in IEC 60871-4.

Requirements for capacitors to be protected by external fuses, as well as requirements for the same, are given in Annex C.

This standard does not apply to capacitors of the self-healing metallized dielectric type.

The following capacitors are excluded from this part of IEC 60871:

– capacitors for inductive heat-generating plants operating at frequencies between 40 Hz and 24 000 Hz (IEC 60110-1);
– series capacitors for power systems (see the IEC 60143 series);
– capacitors for motor applications and the like (see the IEC 60252 series);
– coupling capacitors and capacitor dividers (IEC 60358);
– shunt capacitors for a.c. power systems having rated voltage up to and including 1 000 V (see the IEC 60831and IEC 60931 series);
– small a.c. capacitors to be used for fluorescent and discharge lamps (IEC 61048 and IEC 61049);
– capacitors to be used in power electronic circuits (IEC 61071);
– capacitors for microwave ovens (IEC 61270-1);
– capacitors for suppression of radio interference;
– capacitors intended for use with d.c. voltage superimposed on a.c. voltage.

Accessories such as insulators, switches, instrument transformers, external fuses, etc. are in accordance with the relevant IEC standards.

The object of this part of IEC 60871 is as follows:

a) to formulate uniform rules regarding the performance and rating of units and banks, and the testing of units ;
b) to formulate specific safety rules;
c) to provide a guide for installation and operation.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60060-1:1989, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60071-1:1993, *Insulation co-ordination – Part 1: Definitions, principles and rules*

IEC 60071-2:1996, *Insulation co-ordination – Part 2: Application guide*

IEC 60099 (all parts), *Surge arresters*

IEC 60549:1976, *High-voltage fuses for the external protection of shunt power capacitors*

IEC 60815:1986, *Guide for the selection of insulators in respect of polluted conditions*

IEC 60871-2:1999, *Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V – Part 2:Endurance testing*

IEC 60871-4:1996, *Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V – Part 4: Internal fuses*

3 Terms and definitions

For the purposes of this document, the following definitions apply.

3.1
capacitor element
element
device consisting essentially of two electrodes separated by a dielectric

[IEV 436-01-03]

3.2
capacitor unit
unit
assembly of one or more capacitor elements in the same container with terminals brought out

[IEV 436-01-04]

3.3
capacitor bank
bank
number of capacitor units connected so as to act together

[IEV 436-01-06]

3.4
capacitor
in this part of IEC 60871, the word "capacitor" is used when it is not necessary to lay particular stress upon the different meanings of the words capacitor unit or capacitor bank

3.5
capacitor installation
one or more capacitor banks and their accessories

[IEV 436-01-07]

3.6
discharge device of a capacitor
device which may be incorporated in a capacitor, capable of reducing the voltage between the terminals practically to zero, within a given time, after the capacitor has been disconnected from a network

[IEV 436-03-15, modified]

3.7
internal fuse of a capacitor
fuse connected inside a capacitor unit, in series with an element or a group of elements

[IEV 436-03-16]

3.8
line terminal
terminal intended for connection to a line conductor of a network

[IEV 436-03-01]

NOTE In polyphase capacitors, a terminal intended to be connected to the neutral conductor is not considered to be a line terminal.

3.9
rated capacitance of a capacitor
C_N
capacitance value derived from the values of rated output, voltage and frequency of the capacitor

[IEV 436-01-12]

3.10
rated output of a capacitor
Q_N
reactive power for which the capacitor has been designed

[IEV 436-01-16]

3.11
rated voltage of a capacitor
U_N
r.m.s. value of the alternating voltage for which the capacitor has been designed

[IEV 436-01-15]

NOTE In the case of capacitors consisting of one or more separate circuits (for example single-phase units intended for use in polyphase connection, or polyphase units with separate circuits), U_N refers to the rated voltage of each circuit.

For polyphase capacitors with internal electrical connections between the phases, and for polyphase capacitor banks, U_N refers to the phase-to-phase voltage.